Product Flyer

DK86065-2

14-bit 1+GSa/s DAC Development Kit

May 2011
Version 2.2

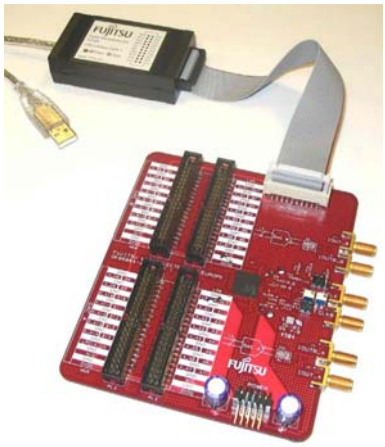
FME/MS/DAC80S/FL_2/5488

The DK86065-2 development kit provides a simple and effective means of evaluating the MB86065 14-bit 1+GSa/s Digital to Analog Converter (DAC).

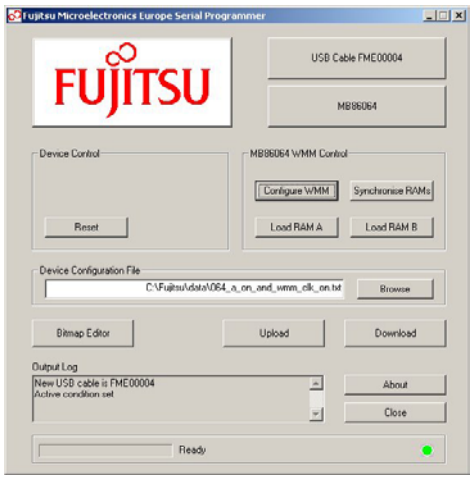
A user manual provides a step-by-step guide from configuring the board and connecting test equipment, through to evaluating performance of the MB86065. Schematics, PCB overlays and connector pin-outs are included. The evaluation platform requires two DC power supplies, 1.8V & 3.3V, each capable of providing 1 amp. The PC USB programming cable included combined with the control software available for free download supports configuration and control of the device, as well as downloading test vectors to the waveform memory module.

DK86065-2

Evaluation Platform



PC Control Software



Features

- Development kit for MB86065
  - MB86065 Evaluation Board
  - PC USB Programming Cable
  - PC control software available for free download
  - User Manual
- SMA data adaptors (optional)
- Xilinx® Virtex® 5 FPGA Platform Adaptor (optional)

Applications

- Provides easy access to on-chip waveform memories to perform initial performance tests, avoiding need for high performance data generating equipment.

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Essential Equipment

Apart from the power supplies, the minimum equipment vital to conducting an evaluation of the MB86065 is a high quality RF clock and spectrum analyser. The phase & spurious performance of the clock should be such as to not limit the DAC performance (e.g. HP8664A). However, performance of even the best spectrum analysers available is inferior to that of the converter. To overcome this, filtering techniques and careful attention to analyser settings, e.g. RF Attenuation, is essential during the course of the evaluation.

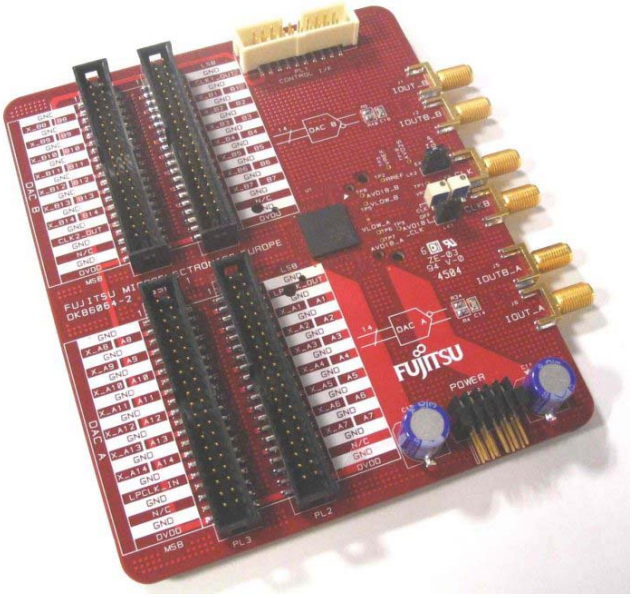

Figure 1. DK86065-2 Evaluation Board

Driving the DAC

As with any DAC evaluation an appropriate test vector stimulus is required. Unfortunately at data rates above 300MSa/s this requires digital pattern generation capabilities beyond most standard test equipment. The DK86065-2 Development Kit has been designed to help overcome this difficulty in a number of ways. Initially, unmodulated or pseudo-modulated single and multi-tone/carrier tests can be conducted using waveforms downloaded to the on-chip memories.

Test waveforms are easily loaded into the memories using the PC software and USB programming cable supplied. Even if high speed digital pattern generating equipment is available, initial testing using the waveform memories serves as a useful setup check.

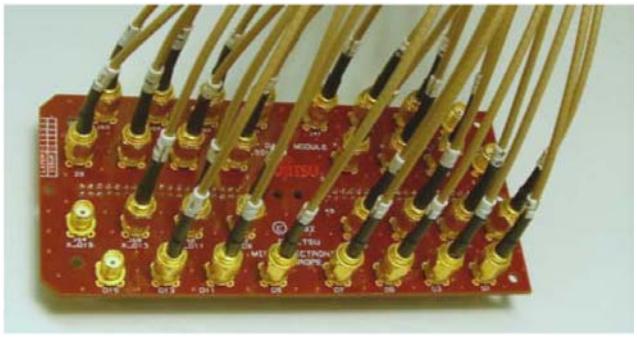

Figure 2. Optional SMA Adaptor

Pattern generators can be connected to the evaluation board using either the onboard 2-row 0.1" data headers, or via ribbon cables to the optional SMA adaptors. When using the 0.1" data headers it is assumed that a custom wiring harness will be required. This would be made according to the connector type and pinout of the generator's output. The optional SMA adaptors provide a convenient conversion from SMA to the evaluation board's 0.1" headers. This alleviates the simultaneous removal of 28 SMAs (14-bit differential LVDS) when required to be disconnected. One advantage of this is the ability to easily swap the data generator between DAC data ports if insufficient channels are available to drive both ports simultaneously.

Rather than using general purpose test equipment, customers may wish to use the evaluation board to construct a platform more representative of their end application. This might, for example, involve an FPGA to implement a variety of pre-processing and/or waveform generation functions. At the simplest level, a setup similar to that described for the digital pattern generator could be used, where a custom wiring harness interfaces a standard or existing FPGA platform to the DAC evaluation board. An optional adaptor is available for direct connection to a Xilinx® Virtex® 5 platform. Control of the DAC from the PC software can be maintained to minimise effort to get up and running.

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Figure 3. Optional Virtex® 5 Adaptor

Clock Inputs & Analog Outputs

The evaluation board is designed to accommodate up to four SMA connectors - two for the differential clock input and two for the differential analog output. Boards are supplied with transformers on-board to perform single ended-to-differential and differential-to-single ended conversions. As such, only two SMAs are required. This facilitates easier connection to standard test equipment.

PC Control & Software

The development kit includes a PC USB programming cable which interfaces between a host PC USB port and the DAC's 4-wire serial interface.

Figure 4. PC USB Interface Adaptor

The latest PC software can be downloaded, following registration, from the Data Converters 'Datasheet & Application Notes' area of the EMEA website.

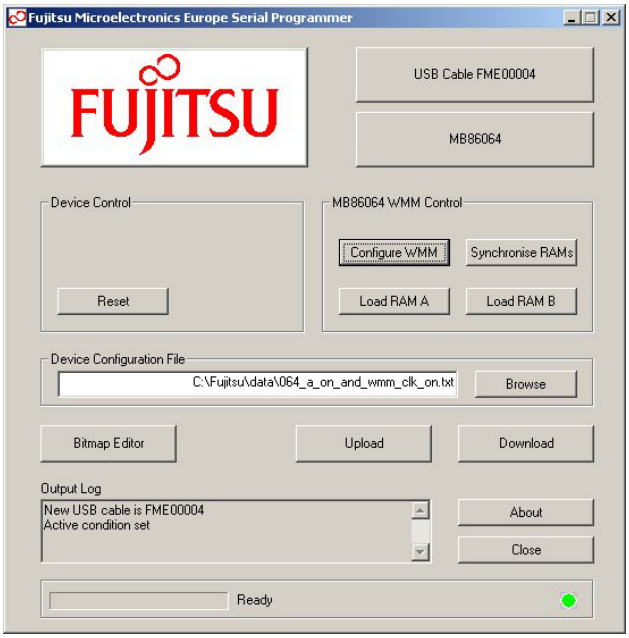

Figure 5. PC Software User Interface

Ordering Information

Part	Order Reference
Complete Development Kit (includes Evaluation Board with device fitted, PC USB Programming Cable & User Manual)	DK86065-2
DAC DK FPGA Adaptor (optional)	DKXC5VADAPT-1
SMA Adaptors (optional)	DK86064-1-SMA
DK86065-2 User Manual	Contact Fujitsu
MB86065 Data sheet	emea.fujitsu.com/semiconductor

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Worldwide Headquarters

Japan

Tel: +81 45 473 8030

Fujitsu Semiconductor Limited
Nomura Fudosan Shin-Yokohama Building
2-10-23 Shin-Yokohama, Kohoku-ku,
Yokohama
Kanagawa 222-8508
Japan

http://www.fujitsu.com/global/services/microelectronics

Asia

Tel: +65 281 0770
Fax: +65 281 0220

Fujitsu Semiconductor Asia Pte Ltd
151 Lorong Chuan
New Tech Park
#05-08
Singapore 556741

http://sg.fujitsu.com/semiconductor

Korea

Tel: +82 2 3484 7108
Fax: +82 2 3484 7111

Fujitsu Semiconductor Korea Limited
2nd Floor, Kosmo Tower Building
1002 Daechi-Dong
Kangnam-Gu
Seoul
Korea

http://www.fujitsu.com/kr/fmk/

China

Tel: +86-21 6416 3688
Fax: +86-21 6335 1615

Fujitsu Semiconductor (Shanghai) Ltd
Room 3102-3103 Bund Center
222 Yan An Rd (E)
Shanghai 200002
PRC

http://sg.fujitsu.com/semiconductor

USA

Tel: +1 408 737 5600
Fax: +1 408 737 5999

Fujitsu Semiconductor America, Inc.
1250 E. Arques Avenue, M/S 333
Sunnyvale, CA 94088-3470
USA

Tel: +1 800 866 8608
Fax: +1 408 737 5984

Customer Response Center
Mon-Fri: 7am-5pm (PST)

http://www.fujitsu.com/us/services/edevices/microelectronics/

Europe

Tel: +49 6103 6900
Fax: +49 6103 690122

Fujitsu Semiconductor Europe GmbH
Pittlerstrasse 47
63225 Langen
Germany

http://emea.fujitsu.com/semiconductor

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